

NUTRIENT MANAGEMENT PLAN FOR RANGELAND, HAYLAND, AND PASTURELAND

NRCS-WY

WY-ECS-45C

NOTE: THIS SPREADSHEET IS NOT INTENDED FOR USE ON PRODUCTION CROPLAND.

FOR:
 COUNTY:
 ASSISTED BY:

DATE:

RESOURCE INVENTORY

= no. of animals
 = avg. weight (lbs)
 = no. of days/yr. waste produced
 = waste produced - lb/day/1000# animal (as excreted)
 = as excreted moisture content % (varies with type of animal)

Type of Animal:

LEGEND: You enter numbers or info
 Numbers automatically calculated
 Numbers from manure analysis or soils test

MANURE PRODUCTION AS EXCRETED

Total Manure Produced = T
(#of animalsXavg.wt.X1T/2000#X#daysXwaste produced/day)

Dry Matter Production = T
((100%-moisture)Xtotal manure produced)

ASSUME 30% MOISTURE AT TIME OF LAND APPLICATION

Dry Matter Remaining = T
(dry matter produced+(30%/70%Xdry matter produced)

NUTRIENT PRODUCTION (may use average amounts from P. Shelton or amounts from manure analysis)

(beef, dairy, horse, & sheep will have different amounts)

Average Nutrient Production

NO3 - N	=	<input type="text"/>	lb/T	OR
NH4 - N	=	<input type="text"/>	lb/T	
Org. N	=	<input type="text"/>	lb/T	
P2O5	=	<input type="text"/>	lb/T	
K2O	=	<input type="text"/>	lb/T	

Manure Analysis

<input type="text"/>	lb/T
<input type="text"/>	lb/T
<input type="text"/>	lb/T
<input type="text"/>	lb/T
<input type="text"/>	lb/T

Nutrients Available after Mineralization (mineralization rates vary with type of animal waste) (NO3 and NH4 nitrogen are available to plants immediately, while organic nitrogen is only available as it gets broken down by microbes)

NO3 - N: mineralization rate =	<input type="text"/>		
NO3 - N: available =	<input type="text"/> 0 lb/T	OR	<input type="text"/> lb/T
<i>(mineralization rateXNO3 produced)</i>			
NH4 - N: mineralization rate =	<input type="text"/>		
NH4 - N: available =	<input type="text"/> 0 lb/T	OR	<input type="text"/> lb/T
<i>(mineralization rateXNH4 produced)</i>			
Organic N: mineralization rate =	<input type="text"/>		
Organic N available =	<input type="text"/> 0 lb/T	OR	<input type="text"/> lb/T
<i>(mineralization rateXOrganicN produced)</i>			
Total N available =	<input type="text"/> 0 lb/T	OR	<input type="text"/> lb/T
<i>(NO3+NH4+Organic N)</i>			
P: mineralization rate =	<input type="text"/>		
P2O5 available =	<input type="text"/> 0 lb/T	OR	<input type="text"/> lb/T
<i>(mineralization rateXP2O5 produced)</i>			
K: mineralization rate =	<input type="text"/>		
K2O available =	<input type="text"/> 0 lb/T	OR	<input type="text"/> lb/T
<i>(mineralization rateXK2O produced)</i>			

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NUTRIENT REQUIREMENTS FOR GRASS OR LEGUME (May use average amounts from P. Shelton or amounts from soils test)

Where will manure be spread? Fill in as appropriate:

<input type="text"/>	Pasture	<input type="text"/>	Dryland	<input type="text"/>	% grass	Goal Yield = <input type="text"/>	T/ac
<input type="text"/>	Hayland	<input type="text"/>	Irrigated	<input type="text"/>	% legume		
<input type="text"/>	Rangeland						

	<u>Average</u>		<u>Soils Test</u>
NO3-N soil content =	<input type="text"/> PPM	OR	<input type="text"/> PPM
P2O5 soil content =	<input type="text"/> PPM	OR	<input type="text"/> PPM
K2O soil content =	<input type="text"/> PPM	OR	<input type="text"/> PPM

From "Guide to Wyoming Fertilizer Recommendations" (also known as WY NRCS Agronomy Tech. Note 10 or Extension Service Bulletin B-1045)

N required =	<input type="text"/>	lb/acre	(from Table 5)
P2O5 required =	<input type="text"/>	lb/acre	(from Table 6)
K2O required =	<input type="text"/>	lb/acre	(from Table 7)

MANURE APPLICATION RATE PER ACRE (nutrients required for your crop less the amount already in the soil)

	<u>Calculated from average Nutrient Production</u>	<u>Calculated from Manure Analysis</u>
Applied at N rate: <small>(N required/Total N available)</small>	<input type="text"/> #DIV/0! T Manure/ac	<input type="text"/> #DIV/0! T Manure/ac
Applied at P2O5 rate: <small>(P2O5 required/P2O5 available)</small>	<input type="text"/> #DIV/0! T Manure/ac	<input type="text"/> #DIV/0! T Manure/ac
Applied at K2O rate: <small>(K2O required/K2O available)</small>	<input type="text"/> #DIV/0! T Manure/ac	<input type="text"/> #DIV/0! T Manure/ac

ACRES NEEDED FOR APPLICATION (Based on manure production)

NOTE: For rangeland or dry pasture applications, where no soils test has been performed, apply at 1/2 the calculated rate (in other words, multiply the acres by 2).

	<u>Calculated from average values</u>	<u>Calculated from Manure and Soils Tests</u>
Applied at N rate: <small>(Dry Matter remaining/N Application Rate)</small>	<input type="text"/> #DIV/0! acres	<input type="text"/> #DIV/0! acres
Applied at P2O5 rate: <small>(Dry Matter remaining/P2O5 Application Rate)</small>	<input type="text"/> #DIV/0! acres	<input type="text"/> #DIV/0! acres

ECONOMIC VALUE OF NUTRIENTS PRODUCED (Assumes 45% mineralization rate of organic nitrogen)

Economic Value = Cost (\$) per lb of nutrient if commercially applied

Nitrogen =	<input type="text"/> 0.34	\$ per lb
Phos =	<input type="text"/> 0.17	\$ per lb
Potass =	<input type="text"/> 0.16	\$ per lb

Nitrogen Value =	<input type="text"/> \$0.00	\$	<input type="text"/> \$0.00	\$
Phosphorous Value =	<input type="text"/> \$0.00	\$	<input type="text"/> 0	\$
Potassium Value =	<input type="text"/> \$0.00	\$	<input type="text"/> 0	\$

Narrative:

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****This spreadsheet was developed to simplify nutrient management and application on rangeland, hayland, and pastureland. The following will apply for the use of this spreadsheet only and for applications only on rangeland, hayland, and pastureland.*

Rangeland: *In lieu of a soils test, manure application will be on upland range sites. Site considerations will include: slopes (0 to 2% is preferred), distance to surface water, distance to groundwater, and soil depth.*

Dry Pasture and Hayland: *Use same criteria as for application on rangeland.*

Irrigated Pasture and Hayland: *A soils test will be required once every 5 years.*

****If adequate suitable upland sites are not available for manure application, further specific site investigations will be required.*

****A map or records showing application times and rates should be kept by the landowner/user.*

****A manure analysis is strongly encouraged, although not required. The nutrient value of manure varies depending upon the type of feed, environmental conditions, and the way the manure is handled prior to application.*

Signature of NRCS Specialist

Date

Signature of Landowner/User

Date

******This spreadsheet is available for your use to estimate waste production and application needs. Without the certification AND SIGNATURE of a certified NRCS specialist, NRCS makes no claims to the accuracy and validity of any figures on or obtained by the use of this spreadsheet or any part therein.***